CORRECTIONS

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For the article "Long-term results of carotid stenting are competitive with surgery," published in J Vasc Surg 2005:41;213-21, an incorrect statistical method was used. Please see corrected portions of text from the article below along with corrected tables.

Structured Abstract

Objective: The feasibility of carotid stenting (CS) is no longer questionable, although its indications remain debatable. Until the results of randomized trials are available, personal series and registries should help in the comparison of long-term results of CS with those of endarterectomy. We report here the long-term results of a large series of CS in our department with a long follow-up. This retrospective study reviews a single surgeon's 11-year experience with CS. Our results are compared with those of conventional surgery emanating from our own series and the North American Symptomatic Carotid Endarterectomy Trial (NASCET), European Carotid Surgery Trial (ECST), and Asymptomatic Carotid Atherosclerosis Study (ACAS).

Materials and Methods: CS has been performed in our department in a single, semi-private institution for 12 years. Patients with high lesions, and postradiotherapy and postendarterectomy stenoses were treated with CS, as were patients at high risk for surgery. The others were operated on with conventional endarterectomy. During the study, we performed 221 CS procedures on 193 patients (150 men and 43 women). The average follow-up was 2.7 years (1 month to 9.3 years). We analyzed the late results in terms of prevention from stroke, the freedom from new neurologic events, and also patency rates of the treated carotid vessels. We also identified predictors for neurologic complication and in-stent restenosis by using univariate analysis.

Results: Life-table analyses at 10 years gave a 96% (confidence interval [CI] = 3%) rate for stroke freedom, a 98% (CI = 2%) rate for fatal stroke freedom, and a primary assisted patency rate of 95% (CI = 3%). Predictors for neurologic complication were age >70 ($P = .041$), and potential renal insufficiency ($P = .056$). In-stent restenosis occurrence extended from 2 months to 4.5 years after the procedure. The restenosis rates at 6 months, 1, 2, and 4.5 years were, respectively, 1.4%, 2.3%, 3.7%, and 5.9% (13/221). No factors were found to be strong predictors of in-stent restenosis.

Conclusion: These long-term results show that CS is competitive with conventional surgery. A more accurate selection for CS or surgery might reduce the rate of complications after carotid stenosis repair.

Results heading, page 215, 2nd paragraph

The Fisher test on risk factors and comorbidities showed (Tables I and II) that age >70 years ($P = .04$) and, potentially, renal insufficiency ($P = .056$) were independently associated with higher postoperative neurologic complications. Amongst features of the lesion (Tables I and II), the etiology of the lesions and their symptomatology were not significant ($P = .993$ and $P = .281$). Amongst technical factors (Tables I and II), the type of cerebral protection systems showed no incidence on neurologic complications ($P = .478$), and predilation was not significant ($P = .549$). The femoral route rather than the cervical one showed a 5 fold increase in neurological complication rate although the difference was not significant ($P = .351$).

Results heading, Subheading: In-stent restenosis, page 216

In-stent restenosis. As defined previously, the restenosis rates at 6 months, 1 year, and 2 years were 1.36%, 1.8%, and 3.2%, respectively. The overall late restenosis rate in our series was 6.8%. We observed 15 ISR in 13 patients. One patient had a delayed bilateral ISR and another had two ISR on two homolateral stents at the right carotid bifurcation and the distal right internal carotid artery.

None of the different factors tested showed any independent predictor of ISR with the Fisher test (Tables III and IV).

Results heading, Subheading: Freedom from stroke, 3rd paragraph, page 217

We found in this study that renal insufficiency and age >70 years, and a lesion located at the bifurcation were good predictors of early and late neurologic complications of CS. Other studies identified old age,[29] preoperative symptoms,[27] length of the lesion,[27] and echogenicity of the plaque[31] as predictors for early new neurologic events.

Discussion heading, Subheading: The fate of stents, pages 217 and 218.

Concerning the fate of stents, Criado et al[32] reported an ISR rate of 3%, Henry et al[33] of 4.7%, Roubin et al[29] 6% for BE stents and 8% for SE stents at 3 years and Chakhtoura et al[34] 8%. These ISR rates on de novo lesions are similar to and can compete with restenosis after endarterectomy, ranging from 4 to 22% for hemodynamic restenosis.[35-38] Only one report[28] related a higher restenosis rate in patients treated by CAS, with a freedom from restenosis >50% at 3 years of only 44%. However this result relies only on 13 patients.

In our series, the ISR rate for lesions narrowing the arterial lumen of more than 50% was low (6.8%). Some factors predicting ISR have been identified[23]; in our experience, we found no significant predictor of ISR. Wholey and colleagues[39] reported recently a vessel patency (ISR > 50%) at 3 years of 96.3% for BE stents and 83.7% for SE stents. Our results may be due to the longer follow-up period we have on BE stents compared to SE stents. The influence of the type of stent will be investigated in future works. More often, carotid stenting appears to heal the atheromatous plaque, with a thin endothelial layer. Other works are reporting that post-endarterectomy stenosis is a predictive factor of ISR.[40]

Table I. Results of the Fisher's test for risk factors, lesion features and technical factors on neurological complications after CS. This table shows the number of cases, the global number of patients in each group and the P value as a result of the Fisher's test.

	Complications			*No complication*			
Type of predictive factor	*Total number (1)*	*Nb with factor (2)*	*% (2/1)*	*Total number (3)*	*Nb with factor (4)*	*% (4/3)*	*P value*
Risk factor (a)							
Renal insufficiency	36	3	8.33	185	3	1.62	0.056
Male sex	36	31	86.11	185	141	76.21	0.272
Age > 70	36	27	75	185	104	56.21	0.041
Lesion factor (b)							
Lesion at the bifurcation	36	9	25	185	27	14.59	0.149
Technical factors (c)							
Femoral access site	36	17	47.22	185	19	10.27	0.351
Protected CS	36	20	55.56	185	75	40.54	0.102
Self-expandable stents	36	2	5.56	185	66	35.67	0.236

Table II. Results of the Fisher's test for risk factors, lesion features and technical factors on neurological complications after CS. This table shows the percentage of factors in each group of patients, the increase in percentage between the group with complications compared to the group with no complication, and the P value.

Type of predictive factor	*% with factor amongst complications*	*% with factor amongst no complication*	*Increase in complication risk*	*P value*
Risk factors				
Renal insufficiency	7.50	1.62	4.63	0.056
Male sex	92.50	76.21	1.21	0.272
Age > 70	73.17	56.21	1.30	0.041
Lesion factor				
Lesion at the bifurcation	26.83	14.59	1.84	0.149
Technical factors				
Femoral access site	53.66	10.27	5.22	0.351
Protected CS	53.66	40.54	1.32	0.102
Self-expandable stents	5.56	35.67	0.15	0.236

Table III. Results of the Fisher's test for lesion features and technical factors on ISR after CS. This table shows the number of cases, the global number of patients in each group and the P value as a results of the Fisher's test

		ISR			*Free from ISR*			
Type of predictive factors	*Factors*	*Total number (1)*	*Nb with risk factor (2)*	*% (2/1)*	*Total number (3)*	*Nb with risk factor (4)*	*% (4/3)*	*P value*
Lesion factor	Asymptomatic lesions	13	11	84.61	208	125	60.09	0.514
Technical factor	Balloon expandable stent	13	11	84.61	203	137	67.48	0.669

Table IV. Results of the Fisher's test for lesion features and technical factors on ISR after CS. This table shows the percentage of factors in each group of patients, the increase in percentage between the group with complications compared to the group with no complication, and the P value.

Type of predictive factors	*Factors*	*% with factor amongst ISR*	*% with factor amongst free from ISR*	*Increase in ISR risk*	*P value*
Lesion factor	Asymptomatic lesions	84.61	60.09	1.41	0.514
Technical factor	Balloon expandable stent	84.61	67.48	1.25	0.669